

Marine Corps Base (MCB) Camp Lejeune Restoration Advisory Board (RAB) Meeting Minutes

MEETING DATE: May 21, 2025

LOCATION: Coastal Carolina Community College, Business Technology Building, Jacksonville, North Carolina

ATTENDEES: Thomas Richard/MCB Camp Lejeune Beth Hartzell/NCDEQ
Laura Spung/MCB Camp Lejeune Matt Louth/CH2M
Jennifer Tufts/U.S. EPA Monica Fulkerson/CH2M
Laura Bader/RAB Co-Chair Beth Davis/CH2M
Riley Lewis /RAB Member Laarni Cooper/NAVFAC (via video call)

FROM: Monica Fulkerson/CH2M

DATE: June 20, 2025

I. Welcome and Introductions

Mr. Richard began the meeting, introduced the team, and explained the purpose of the RAB.

II. Basewide Accomplishments and Goals

Objective: The purpose of this agenda item is to present Fiscal Year (FY) 2023 and 2024 accomplishments, present FY 2025 accomplishments to date, and to review FY 2025 goals.

Overview: A presentation was reviewed by Mr. Richard.

Marine Corps Base (MCB) Camp Lejeune was placed on the National Priorities List (NPL) by the Environmental Protection Agency (EPA) in 1989. To date, over 500 sites have been cleaned up through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (including the Installation Restoration Program [IRP] and Military Munitions Response Program [MMRP]), the Resource Conservation and Recovery Action (RCRA), the Underground Storage Tank (UST) program, and Activity projects.

There are 108 sites in the CERCLA process at MCB Camp Lejeune, including 76 IRP sites and 32 MMRP sites. These are in various phases of the CERCLA process, including Preliminary Assessment/Site Inspection, Remedial Investigation/Feasibility Study, Proposed Plan/Record of Decision, Remedy in Place, and Response Complete/No Further Action.

Mr. Richard reviewed FY 2023 and FY 2024 accomplishments. In FY 2023 and FY 2024, more than 160 monitoring wells were installed and more than 2,000 environmental samples were collected, including 346 soil samples, 1,374 groundwater samples, 1 porewater sample, 94 surface water samples, 60 sediment samples, 35 indoor and outdoor air samples, 12 exhaust air samples, 19 sewer vapor samples, and 85 soil gas samples. Over 130 acres of munitions surface clearance was conducted and 55 munitions items were identified and removed.

From a remediation perspective, in FY 2023 and FY 2024, 232 million gallons of water was treated at the Site 82 groundwater treatment plant; over 4.6 million gallons of water was treated in Site 82 and Site 93 subgrade biogeochemical reactors (SBGRs); air sparge systems operated for more than 35,000 hours at

Sites 35, 73, 82, and 89; more than 117,000 gallons of emulsified vegetable oil (EVO) substrate was injected at the Site 88 biobarrier; over 4,200 acres of Land Use Controls were inspected and managed; and 3 vapor intrusion mitigation systems were maintained and monitored.

With respect to sustainability, the generation of more than 3,000 gallons of aqueous waste was eliminated through passive sampling; more than 189,000 gallons of groundwater was treated exclusively using solar power; more than 4,000 pounds of metallic debris was recycled; over 70 cubic yards of soil was reused during construction of the Site 93 SBGR; and resource use (paper) was reduced through electronic document submittals and virtual meetings.

More than 60 documents were finalized in FY 2023 and FY 2024, including 12 PFAS UFP-SAPs, 27 LTM and pilot study work plans and reports, 9 IRP and MRP documents, and 5 program (Basewide) management documents, among others.

Meetings and outreach efforts continued in FY 2023 and FY 2024. Eight RAB meetings were held, 7 Partnering meetings were conducted, and 6 success stories were posted on the MCB Camp Lejeune Facebook page.

There were several key projects in FY24, including Remedy Optimization at Site 82, where the groundwater extraction and treatment system has been operating since 1997. Alternate treatment technologies are being evaluated to improve the cleanup strategy, including SBGRs and air sparging. The SBGRs removed source material, treated more than 4.4 million gallons of groundwater, and reduced the remediation timeframe in the area to 10 years. Air sparging reduced volatile organic compound (VOC) concentrations more than 90 percent after 12 months of operation, also reducing the remediation timeframe in the treatment area. Another key project was the subsurface munitions and explosives of concern (MEC) removal at UXO-28, in support of road expansion and helicopter landing pad construction. A total of 3.5 acres were cleared within one month. Five items of material potentially presenting an explosive hazard (MPPEH) were removed and certified as material documented as safe (MDAS), including an M8 practice landmine, a M29 3.5-inch practice rocket, and three pieces of 3.5-inch practice rockets. In total, 17 pounds of MDAS and 560 pounds of other metallic debris was transported offsite for recycling.

Mr. Richard then reviewed accomplishments to date in FY 2025. So far in FY 2025, more than 450 environmental samples have been collected, including 389 groundwater samples, 21 surface water samples, 13 sediment samples, and 31 soil gas samples.

Within the MMRP program, the Work Plan for the Site UXO-31 (Off-Base Danger Zone) RI was finalized. The public meeting was held on March 26 to explain the use of drones to complete the work. Field work is anticipated to begin in summer 2025.

From a remediation perspective, over 4,200 acres of Land Use Controls were inspected and managed; two vapor intrusion mitigation systems were maintained and monitored; air sparging systems operated for more than 7,400 hours at Sites 35 and 89; more than 77.5 million gallons of water was treated at the Site 82 treatment plant; 49,000 gallons of water were treated in the Site 93 SBGRs; and 2,500 gallons of PFAS-impacted aqueous waste was treated using mobile treatment systems.

So far, ten documents have been finalized in FY 2025. Significant deliverables have included the Site UXO-29 Feasibility Study, the Site UXO-31 Remedial Investigation SAP, and the Site 89 E-Redox Pilot Study and Data Gap Investigation SAP.

With respect to sustainability, more than 49,000 gallons of groundwater have been treated exclusively using solar power, with an estimated savings of approximately 42 kilowatts per hour.

Meetings and outreach efforts are ongoing on FY 2025. So far, 2 RAB meetings have been held (November 2024 and February 2025), one public meeting was conducted in March 2025 for the UXO-31 RI, three Partnering meetings have been conducted (November 2024, and February 2025, and May

2025), and two success stories have been posted on Facebook (October 2024 on Long-term Monitoring and Sustainable Remediation, February 2025 on the Community Involvement Plan, May 2025 on Basewide accomplishments). Ms. Lewis asked about participation in the Community Involvement Plan. Mr. Louth indicated that responses were limited and was mostly from RAB members.

In FY 2025, PFAS has been a key project. A site investigation was conducted at seven areas of interest (AOI) where known AFFF releases occurred, starting in 2017. In 2019, a Basewide PA was conducted, which included 52 additional AOIs. The first RI was initiated in 2021 and the Basewide SI was finalized in 2022, which evaluated a total of 59 AOIs, of which 52 were recommended for additional investigation. Currently, 12 RIs are in progress and 6 more are in the planning phase. Some AOIs were combined into a single RI based on proximity, likelihood of comingled plumes, type and age of release. AOIs are prioritized based on potential for exposure, proximity to the Base boundary, proximity to surface water features, and relative concentration levels.

An EK-BIO pilot study is underway at Site 88, with CH2M partnered with Geosyntec, with a preliminary size estimate of 25 ft by 25 ft, including the installation of three anodes and cathode well heads. A staged operation and monitoring schedule is planned, including 5-6 months of operation and monitoring, 1-2 months of downtime to allow for biodegradation, followed by 5-6 months of operation and monitoring under reversed electric fields. Field activity will begin later this summer (July/August).

A bioelectrochemical (E-Redox) study is underway at Site 89. E-Redox is a patented technology developed by Advanced Environmental Technologies of Fort Collins, Colorado. E-Redox generates a low voltage gradient electric field in between electrodes, uniformly inducing redox reactions within the impacted matrices. Degradation is achieved through multiple reactions: enhanced reductive dechlorination (biological hydrogenous and abiotic beta-elimination), contaminant desorption, and increased microbial activity. Three electrode wells and one groundwater monitoring well will be installed in each of two treatment areas. The system will operate for one year. Two groundwater samples and 18 soil samples will be collected during three monitoring events (baseline, after six months of operation, and after 12 months of operation) for site-specific VOCs. Field activity is underway.

Goals for FY 2025 include finalizing the following IR documents: Site 9 (OU2) VOC SI Report, 2 PFAS RI work plans and initiate field activities, Site 111 PFAS RI Report, Site 88 Zone 1 EK-BIO Work Plan and initiate pilot study, Site 88 Zone 2 Work Plan and initiate field activity (complete), Site 88 Zone 3 Pilot Study Technical Memorandum (complete), Site 89 E-Redox Treatability Study Work Plan and initiate field activity, Site 96 Interim Remedial Action Completion Report, 11 Long-term Monitoring Annual Reports, Long-term Monitoring/VIMS Sampling and Analysis Plan, Vapor Intrusion Five Year Review Sampling and Analysis Plan Addendum, Site 82 Building 626 Tech Memo, and the 2025 Five Year Review. The following MMRP documents are planned to be finalized: UXO-28 After Action Report, UXO-28 Feasibility Study (complete), UXO-28 Proposed Plan, UXO-28 Record of Decision, UXO-29 Feasibility Study (complete), UXO-29 Proposed Plan, UXO-29 Record of Decision, UXO-30 Record of Decision (complete) and prepare Remedial Design, UXO-31 Remedial Investigation Work Plan and initiate field activities (complete), and Basewide Radiological Preliminary Assessment, initiate Site Inspection. Ms. Lewis asked about the PFAS Work Plans, field activities, and Camp Davis. Camp Davis is also called Site 111. Mr. Louth indicated that a background study and pilot study are being conducted.

MCB Camp Lejeune has received multiple awards for its environmental programs. Camp Lejeune has one the Secretary of the Navy Award Environmental Restoration – Installation nine times, most recently in 2024; the Secretary of Defense Award three times, most recently in 2022; and in 2023 was recognized by USEPA with a National Notable Achievement Award for Federal Facilities Excellence in Partnering Team of the Year.

IV. RAB Business

Mr. Richard proposed moving to solely virtual meeting notifications instead of hard copy notifications. RAB members in attendance agreed. Ms. Lewis asked if virtual meetings were being considered. Mr. Richard explained that the virtual option today was for the Navy to be able to participate. The next RAB meeting is planned for August 2025.

MARINE CORPS BASE
CAMP LEJEUNE



FY 2025 Basewide Accomplishments and Goals

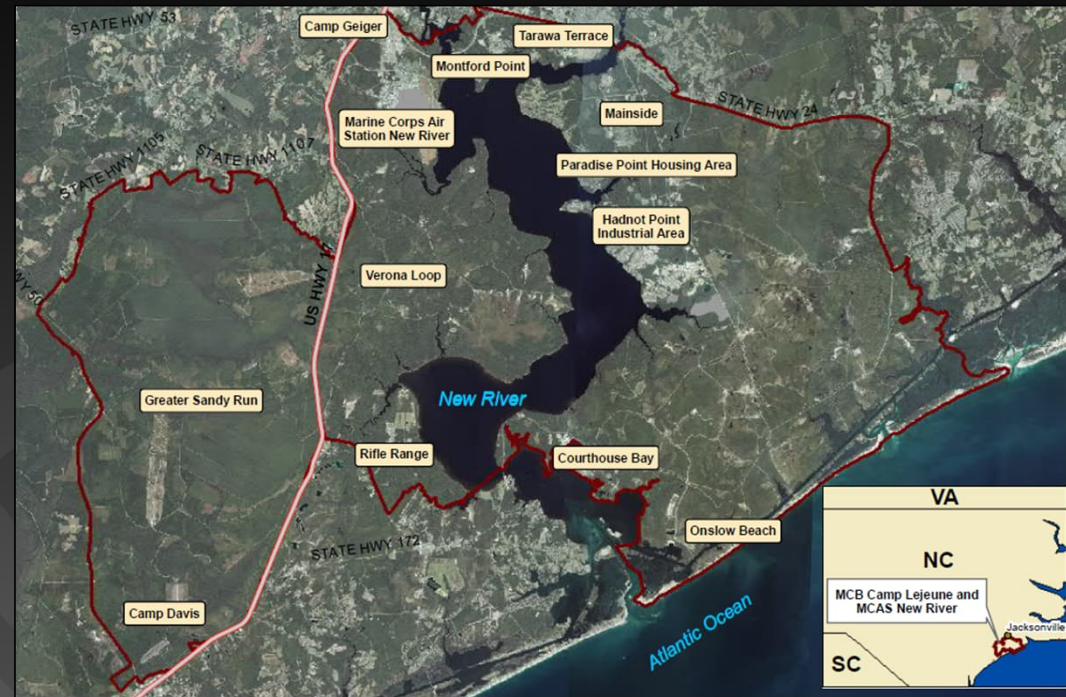
MCB Camp Lejeune
Restoration Advisory Board Meeting
May 21, 2025



ch2m

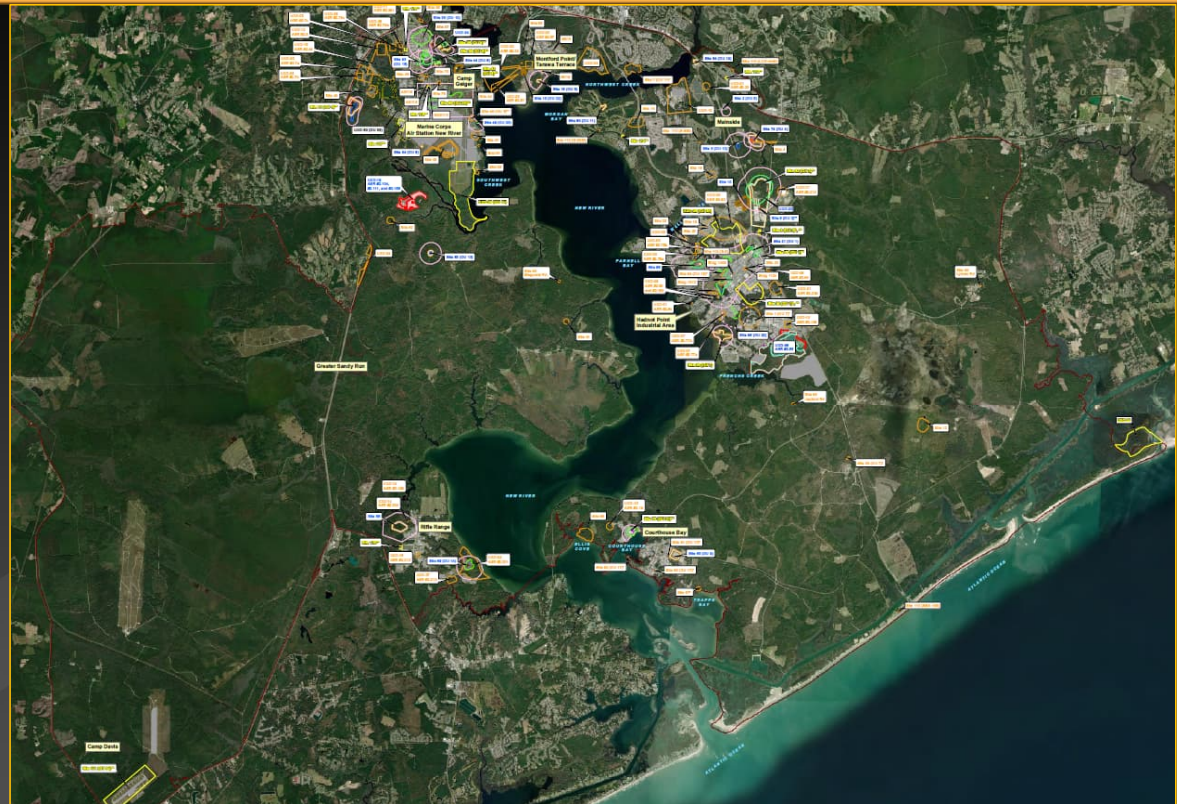
Objectives

- Present Fiscal Year (FY) 2023 and 2024 accomplishments
- Present FY 2025 accomplishments to date
- Review FY 2025 goals



MCB Camp Lejeune Site Locations

- The Environmental Protection Agency (EPA) placed MCB Camp Lejeune on National Priorities List in 1989
- To date, over 500 sites have been cleaned up
 - CERCLA
 - IRP
 - MMRP
 - RCRA
 - UST
 - Activity projects



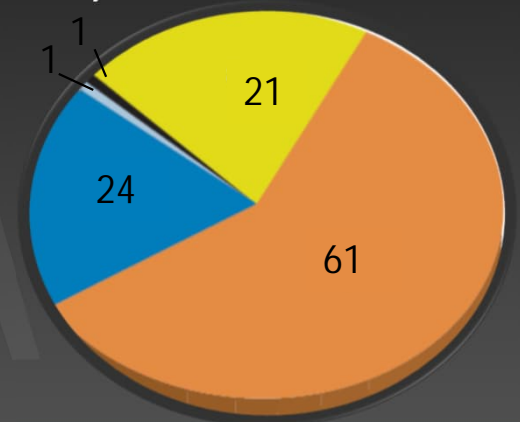
- ★ 1984 RCRA Permit Issued
- ★ 1989 NPL
- ★ 1990 First CIP
- ★ 1991 Federal Facility Agreement
- ★ 1992 First SMP
- ★ 1999 First Five-Year Review
- ★ 2020 Latest Five-Year Review
- ★ 2020 Latest CIP
- ★ 2020 Latest RCRA Permit Update Submitted
- ★ 2024 Latest SMP

MCB Camp Lejeune Site Status

There are 108 Sites in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Process at MCB Camp Lejeune

- 76 Installation Restoration Program (IRP) Sites
- 32 Military Munitions Response Program (MMRP) Sites

CERCLA Process



Remedial Investigation/Feasibility Study

- * Site 9 Fire Fighting Training Pit at Piney Green Road
- * Site 24 Industrial Area Fly Ash Dump
- Site 28 Hadnot Point Burn Dump
- Site 36 Camp Geiger Dump Area
- Site 41 Camp Geiger Dump Near Former Trailer Park
- Site 43 Agan Street Dump
- Site 73 Courthouse Bay Liquids Disposal Area
- Site 78 Hadnot Point Industrial Area
- Site 82 Piney Green Road VOC Area
- Site 86 Tank Area AS419-AS421
- Site 89 Former DRMO
- Site 111 Camp Davis Forward Arming and Refueling Point Activities South
- Site 112 Building LCH4022 Midway Park Fire Station (Station #2)
- Site 113 Building TC701 Camp Geiger Fire Station (Station #6)
- Site 114 Building 2600 Paradise Point Fire Station (Station #4)
- Site 115 Building RR155 Stone Bay MARSOC Fire Station
- Site 116 Building AS118 Motor Transport Maintenance Facility
- Site 117 Building MWSS-272 Motor Transport Area
- UXO-28 Wallace Creek Phase 1 Munitions Response Site
- UXO-29 New River Runway Expansion Area (ASR #2.1, 2.167, and 2.29)
- UXO-31 Off-Base Surface Danger Zones

Proposed Plan/Record of Decision

- UXO-30 Portions of B-6 (ASR #2.44), B-12 (ASR #2.134), and ABC Ranges (ASR #2.198)

Remedial Design/Remedial Action

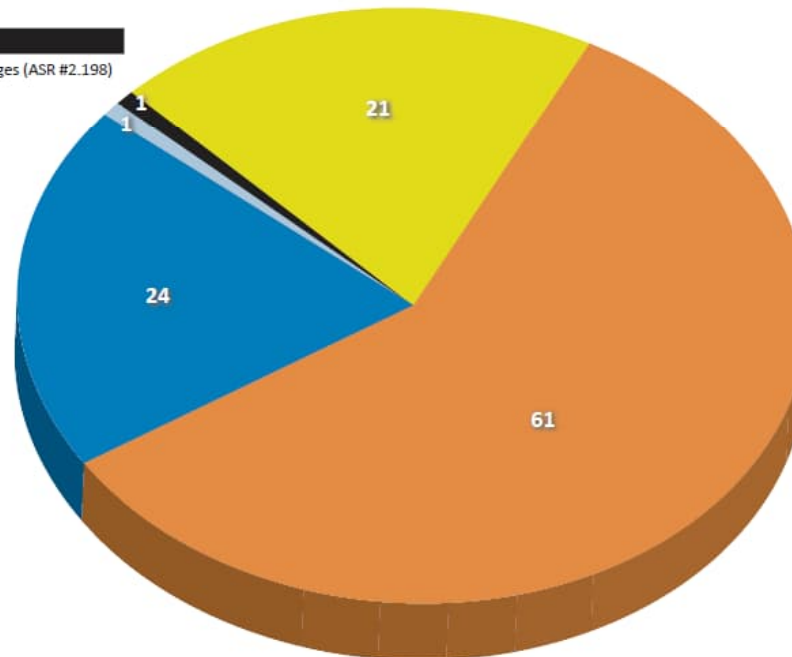
- Site 96 Building 1817 UST

Remedy in Place

- Site 2 Former Nursery and Day Care Center
- Site 3 Old Creosote Plant
- Site 6 Storage Lots 201 and 203
- Site 10 Original Base Dump
- Site 15 Montford Point Burn Landfill Area
- Site 16 Former Montford Point Burn Dump
- Site 21 Transformer Storage Lot 140
- Site 35 Camp Geiger Area Fuel Farm
- Site 44 Jones Street Dump
- Site 49 MCAS Suspected Minor Dump
- Site 54 Crash Crew Fire Training Burn Pit
- Site 63 Verona Loop Dump
- Site 65 Engineer Area Dump
- Site 68 Rifle Range Dump
- Site 69 Rifle Range Chemical Dump
- Site 74 Mess Hall Grease Disposal Area
- Site 80 Paradise Point Golf Course Maintenance Area
- Site 84 Building 45 Area
- Site 88 Base Dry Cleaners
- Site 93 Building TC-942
- UXO-06 Fortified Beach Assault Area (ASR# 2.65)
- UXO-19 M-4 Rifle Grenade Range (ASR #2.104), K-22 Practice Hand Grenade Course (ASR #2.111), M115 Hand Grenade Course (ASR #2.168)
- UXO-22 Sites 6 and 82 (OU2)
- UXO-24 Camp Geiger Area

Response Complete/No Further Action

- HPIA Buildings 1120, 1409, and 1512
- MCAS New River Buildings SAS113, AS116, and AS119
- Montford Point Buildings M119 and M315
- * Site 1 French Creek Liquids Disposal Area
- Site 4 Sawmill Road Construction Debris Dump
- * Site 7 Tarawa Terrace Dump
- Site 12 Explosive Ordnance Disposal (formerly EOD-1, G-4A)
- Site 13 Golf Course Construction Debris Dump
- Site 18 Watkins Village (E) Site
- Site 19 Naval Research Lab Dump
- Site 20 Naval Research Lab Incinerator
- Site 23 Roads and Grounds Building 1105
- Site 25 Base Incinerator
- * Site 30 Sneads Ferry Road Fuel Tank Sludge Area
- Site 37 Camp Geiger Area Surface Dump
- Site 38 Camp Geiger Construction Dump
- Site 40 Camp Geiger Area Borrow Pit
- Site 42 Building 705 BOQ Dump
- Site 46 MCAS Main Gate Dump
- * Site 48 MCAS Mercury Dump
- Site 51 MCAS Football Field
- Site 53 MCAS Warehouse Building 3525 Area
- Site 55 Air Station East Perimeter Dump
- Site 61 Rhodes Point Road Dump
- Site 62 Race Course Area Dump
- Site 66 AMTRAC Landing Site and Storage Area
- * Site 67 Engineer's TNT Burn Site
- Site 75 MCAS Basketball Court Site
- Site 76 MCAS Curtis Road Site
- Site 85 Former Camp Johnson Battery Dump
- Site 87 MCAS Officer's Housing Area (formerly Site A)
- * Site 90 Building BB-9
- * Site 91 Building BB-51
- * Site 92 Building BB-246
- * Site 94 PCX Service Station
- Site 95 Dipping Vat Sites
- * Site 110 Former Water Towers (LCH-4004, S-29, S-830, S-2323, SBA-108)
- UXO-01 Former Live Hand Grenade Course (ASR #2.23)
- UXO-01 D-6 50-foot Indoor Rifle and Pistol Range (ASR #2.64)
- UXO-02 Unnamed Explosive Range (ASR #2.201)
- UXO-03 Practice Hand Grenade Course (ASR #2.78a, 2.78b)
- UXO-04 Knox Trailer Park
- UXO-05 Mini Anti-Tank Range (ASR #2.7a, 2.7b, 2.7c)
- UXO-07 Practice Hand Grenade Course (ASR #2.77a, 2.77b)
- UXO-08 2.36-inch Bazooka Range, Base CS Chamber and NBC Training Trail (ASR #2.182), D-7 Gas Chamber (ASR #2.80)
- UXO-09 F-9, Triangulation Range (ASR #2.83)
- UXO-10 D-11A, Flame Tank and Flame Thrower Range (ASR #2.136)
- UXO-11 B-5, Practice Hand Grenade Course (ASR #2.281)
- UXO-12 1,000-inch Range (ASR #2.5)
- UXO-13 Naval Regional Medical Center
- UXO-14 Indoor Pistol Range (ASR #2.199), Gas Chamber (ASR #2.200)
- UXO-15 1,000-inch Range (ASR #2.19)
- UXO-16 Former Gun Positions 41A and 41B (ASR #2.212)
- UXO-17 Firing Position #3 (ASR #2.212)
- UXO-18 B-6, 50-foot Small Arms Range (ASR #2.44)
- UXO-20 1,000-inch Range Montford Point (ASR #2.32), A-1, 50-foot .22 Caliber Range (ASR #2.87)
- UXO-21 Gas Chamber (2D MARDIV) (ASR #2.204)
- UXO-23 D-9 Skeet Range (ASR #2.82)
- UXO-25 Verona Loop
- UXO-26 B-3 Gas Chamber (ASR #2.79a, 2.79C)
- UXO-27 Gun Position Owl (ASR #2.212)



* Response Complete Sites; where a remedy was implemented and cleanup levels were met.

FY23/FY24 Accomplishments

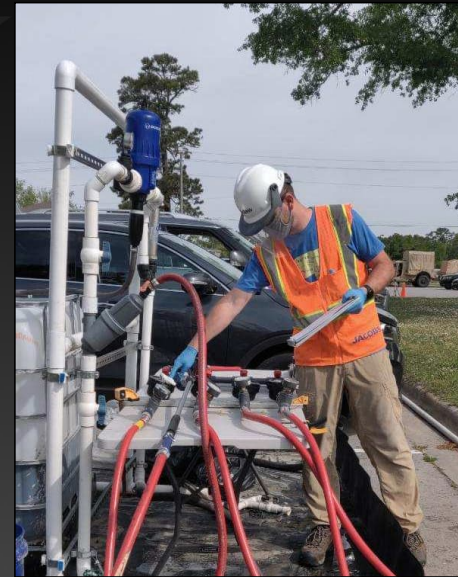
FY23/FY24 Investigation Metrics

- Installed over 160 monitoring wells
- Collected over 2,000 samples
 - 346 soil
 - 1,374 groundwater
 - 1 porewater
 - 94 surface water
 - 60 sediment
 - 35 indoor & outdoor air
 - 12 exhaust air
 - 19 sewer vapor
 - 85 soil gas (subslab or exterior)
- Conducted munitions surface clearance over 130 acres
- Identified and removed 55 munitions items



FY23/FY24 Remedy & Study Metrics

- Treated 232 million gallons of water at Site 82 groundwater treatment plant
- Treated over 4.6 million gallons of water in Site 82 & 93 subgrade geochemical bioreactors (SBGR)
- Operated Sites 35, 73, 82, & 89 air sparge for over 35,000 hours
- Injected over 117,000 gallons of emulsified vegetable oil (EVO) at 88 biobarrier
- Inspected and managed over 4,200 acres of Land use Controls
- Maintained and monitored 3 vapor intrusion mitigation systems



FY23/FY24 Sustainability Metrics

- Eliminated over 3,000 gallons of aqueous waste through passive sampling
- Treated over 189,000 gallons of groundwater using exclusively solar power
- Recycled over 4,000 pounds of metallic debris
- Reused over 70 cubic yards of soil during construction of Site 93 SBGR
- Reduced resource use through electronic document submittals and virtual meetings

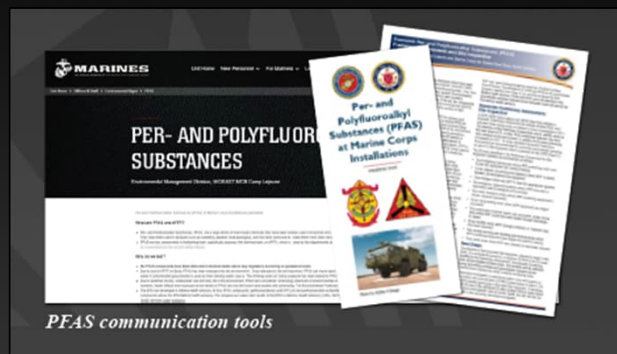


FY23/FY24 Documentation Metrics

- Finalized over 60 documents

- Highlights:

- 12 PFAS UFP-SAPs
- 27 LTM and pilot study work plans and reports
- 9 IRP and MRP documents
- 5 Program management documents



Environmental Restoration Work Plans and Reports – Fiscal Years 2023–2024	
Program Management Documents and Schedules	5
Proposed Plans, Decision Document, Records of Decision (RODs), and post-ROD Documents	3
LTM Work Plans and Pilot Study Work Plans and Reports	27
Installation Restoration Program Investigations and Reports	6
Munitions Response Program Investigations and Reports	3
Pilot Studies	1
Emerging Contaminants	14
RCRA Work Plans and Reports	1
TOTAL	60



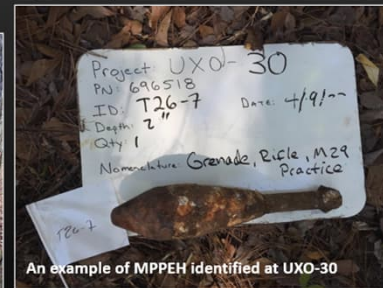
FY23/24 Meetings and Outreach

- Held 8 RAB meetings
- Conducted 7 Partnering meetings
- Posted 6 success stories on Facebook

DID YOU KNOW... MCB Camp Lejeune's Environmental Restoration Program has been around since the early 1990s and has been working since then to conduct environmental investigations and cleanup, where needed, in partnership with the Navy, the North Carolina Department of Environmental Quality, and the United States Environmental Protection Agency.

The Proposed Plan (PP) for addressing potential human health risks at UXO-30 is now available for review in the Administrative Record.* The UXO-30 PP identifies and discusses the preferred alternative which consists of:

- Surface clearance of munitions and explosives of concern (MEC) and material potentially presenting an explosive hazard (MPPEH) within the western portion of the site
- Sitewide land use controls to reduce or prevent potential contact with MEC/MPPEH that may be present



An example of MPPEH identified at UXO-30

*-The Proposed Plan and other background documentation are available for public review on the Community Outreach page which is accessible at <https://go.usa.gov/xSdBA>. The Administrative Record is also accessible from this link.

The Department of the Navy (DoN) is inviting public comment on the Proposed Plan for UXO-30. Please provide written comments on the UXO-30 Proposed Plan on or before (postmark by) September 22, 2023 to the following address:

NAVFAC Mid-Atlantic
NAVFAC MIDLANT EV34
9324 Virginia Avenue
Building N26, RM 3300
Norfolk, VA 23511-3095

benjamin.h.francisco.civ@us.navy.mil

If you have questions, contact your chain of command or Base Environmental Management Division at (910) 451-9641 or Lejeune_IR_Program@usmc.mil.
Website: <http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt>

FY24 Key Project – Site 82 Remedy Optimization

- Groundwater extraction and treatment system has been operating since 1997
- Alternate treatment technologies being evaluated to improve cleanup strategy
 - SBGRs
 - Air Sparging
- SBGRs
 - Removed source material
 - Treated over 4.4 million gallons
 - Reduced remediation timeframe in area to 10 years
- Air Sparging
 - More than 90 percent reduction in VOC concentrations observed after 12 months of operation
 - Reduced remediation timeframe in treatment area



SBGR Construction –
Mixing Amendments into Reactive Media



Air Sparging Manifold at Site 82

FY24 Key Project – UXO-28

Subsurface MEC Removal

- Removal of munitions and explosives of concern (MEC) in support of road expansion and helicopter landing pad construction
- Cleared 3.5 acres within one month
- Five items of material potentially presenting an explosive hazard (MPPEH) removed and certified as material documented as safe (MDAS)
 - M8 practice landmine
 - M29 3.5-inch practice rocket
 - Three pieces of 3.5-inch practice rockets
- 17 pounds of MDAS and 560 pound of metallic debris transported offsite for recycling



2025 Accomplishments to Date

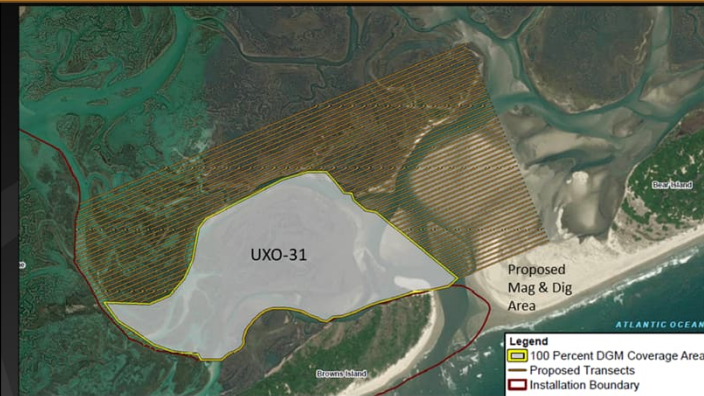
Field Investigation Activities

- Collected over 450 samples
 - 389 groundwater
 - 21 surface water
 - 13 sediment
 - 31 soil gas (subslab or exterior)



Munitions Response Investigation Activities

- Finalized Work Plan for MMRP Site UXO-31 RI (Off-Base Danger Zone)
 - Public meeting on March 26 to explain drone work
 - Field work in Summer 2025



Remedy Implementation and Studies

- Inspected and managed over 4,200 acres of Land use Controls
- Maintained and monitored 2 vapor intrusion mitigation systems
- Operated over 7,400 hours air sparging
 - Site 35
 - Site 89
- Site 82
 - Treated over 77.5 million gallons of water through treatment plant
- Treated 49,000 gallons of water in Site 93 SBGRs
- Treated 1,500 gallons of PFAS-impacted aqueous waste using mobile treatment system



Documentation

- Finalized 10 documents
 - Highlights:
 - Site UXO-29 Feasibility Study
 - Site UXO-31 Remedial Investigation SAP
 - Site 89 E-Redox Pilot Study and Data Gap Investigation SAP



Naval Facilities Engineering Systems Command Mid-Atlantic
Norfolk, Virginia

Final

Feasibility Study Report Military Munitions Response Program Site UXO-29

Marine Corps Base Camp Lejeune and
Marine Corps Air Station New River
North Carolina

March 2025

DISTRIBUTION STATEMENT A. APPROVED FOR



Naval Facilities Engineering Systems Command Mid-Atlantic
Norfolk, Virginia

Final

Remedial Investigation Munitions Res Quality Assurance Project Plan Military Munitions Response Program Off-Base Surface Danger Zones

Marine Corps Base Camp Lejeune
North Carolina

December 2024

DISTRIBUTION STATEMENT A. APPROVED FOR



Naval Facilities Engineering Systems Command Mid-Atlantic
Norfolk, Virginia

Sampling and Analysis Plan Bioelectrochemical Pilot Study and Data Gap Investigation for Remedy Optimization Operable Unit 16 – Site 89

Marine Corps Base Camp Lejeune and
Marine Corps Air Station New River
North Carolina

January 2025

DISTRIBUTION STATEMENT F. FURTHER DISTRIBUTION ONLY AS DIRECTED BY
NAVFAC MID-ATLANTIC OR HIGHER DOD AUTHORITY. JANUARY 2025. NO FURTHER DISSEMINATION
AUTHORIZED WITHOUT PRIOR APPROVAL BY THE CONTROLLING AGENCY.

Sustainability

- Treated over 49,000 gallons of groundwater using exclusively solar power
 - Estimated savings of ~42 kilowatts per hour

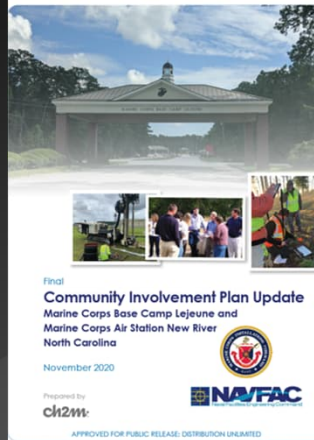


Meetings and Outreach

- Held 2 RAB meetings
 - November 2024
 - February 2025
- Completed 1 Public Meeting
 - March 2025 - UXO-31 RI
- Conducted 3 Partnering meetings
 - November 2024
 - February 2025
 - May 2025
- Posted 2 success stories on Facebook
 - October 2024 – Long-term Monitoring and Sustainable Remediation
 - February 2025 – Community Involvement Plan
 - May 2025 – Basewide Accomplishments

MCB CAMP LEJEUNE DID YOU KNOW?

Since the 1990s, MCB Camp Lejeune's Environmental Restoration Program has been conducting environmental investigations and cleanup in partnership with the Navy, the North Carolina Department of Environmental Quality, and the United States Environmental Protection Agency.



WHAT IS A COMMUNITY INVOLVEMENT PLAN?

A Community Involvement Plan (CIP) is a site-specific strategy to enable meaningful community involvement throughout the CERCLA cleanup process.

- CIPs are updated every five years
- CIPs describe the activities the Navy plans to undertake during the response or removal activities
- The *Did You Know* fact sheets are a result of community feedback to hear more about the cleanup program successes!

The 2025 CIP is being updated now; to find the 2020 CIP go to:

https://www.navfac.navy.mil/Portals/68/Documents/Business-Lines/Environmental/Environmental-Restoration/NAVFAC-Mid-Atlantic/Camp-Lejeune-MCB/Camp_Lejeune_MCB_CIP_Nov2020.pdf?ver=H9U0N755jsF3sxmGNO8H6A%3d%3d

Want to get involved?

Go to (<https://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Restoration-Advisory-Board/>) in mid-February to participate in a community questionnaire about how the Navy communicates about the Environmental Restoration Program.

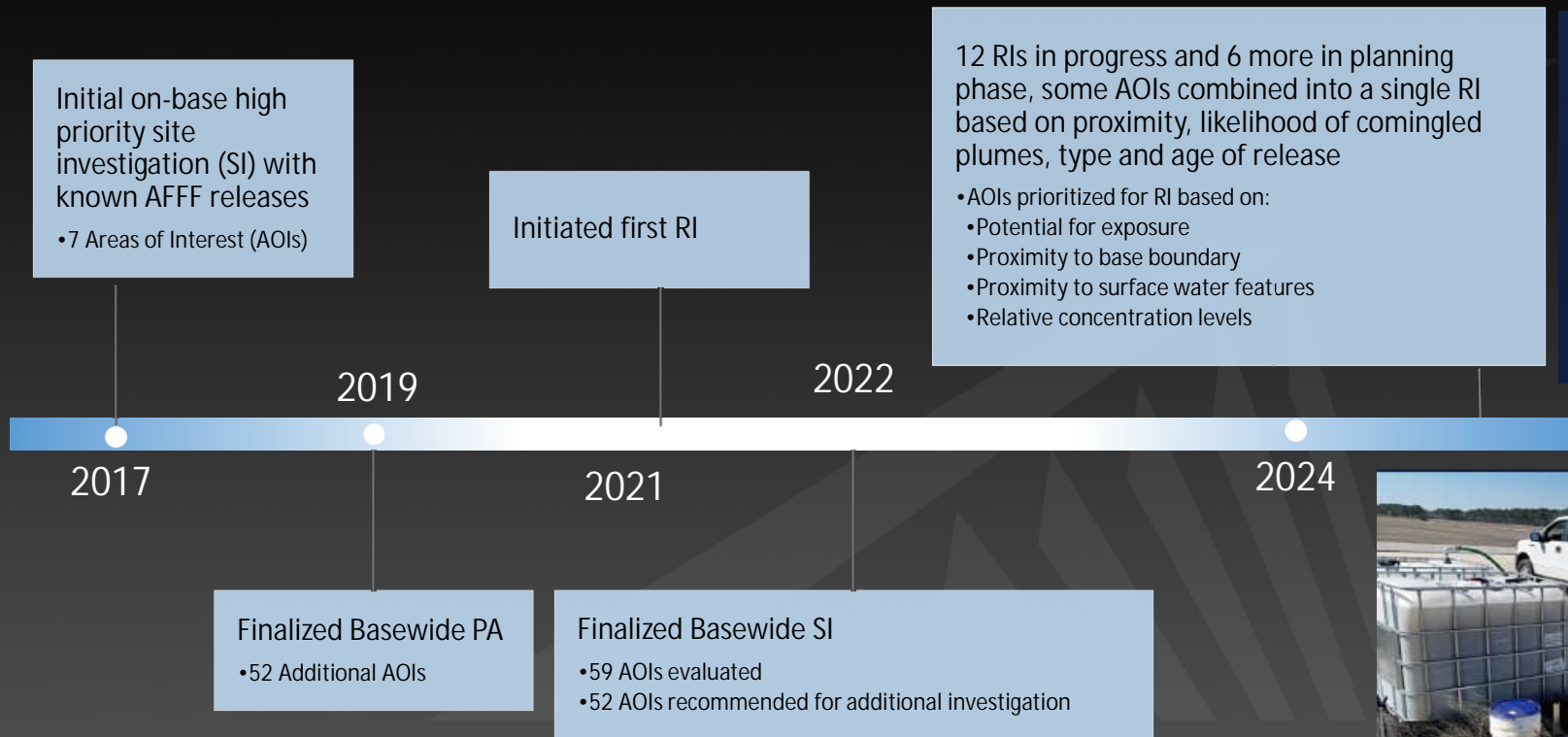
YOUR INPUT will be used to update the CIP!



More information will be shared at our next RAB meeting held on February 19, 2025 at 6:00pm at the Business Technology Building Room BT 106, Coastal Carolina Community College, 444 Western Blvd, Jacksonville, NC. Directions and details are provided at the following link: <https://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Restoration-Advisory-Board/>

Questions? Contact your chain of command or Base Environmental Restoration Program at: (910) 451-9641 or Lejeune_IR_Program@usmc.mil

FY25 Key Projects – PFAS



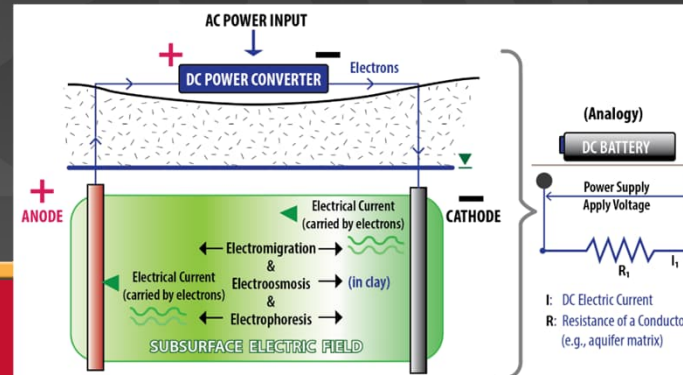
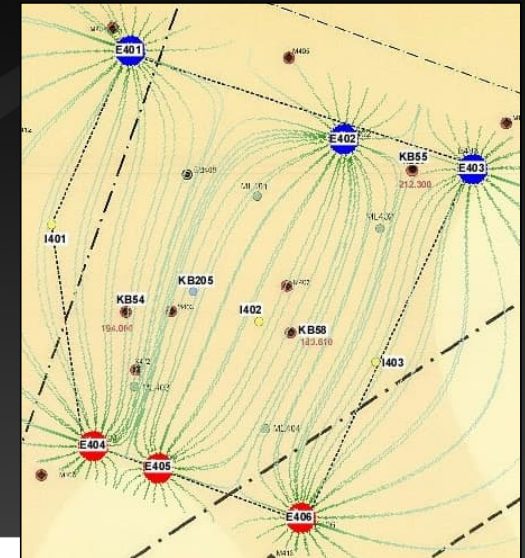
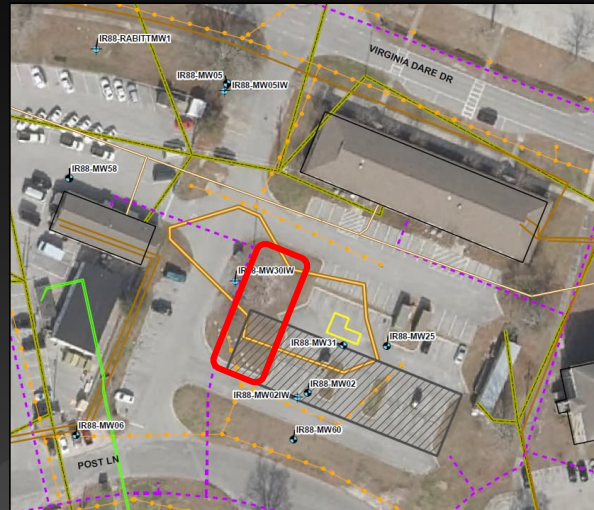
PFAS IDW Treatment System Pilot System Vessels



PFAS IDW Treatment System – Pilot

FY25 Key Projects – Site 88 EK BIO Study

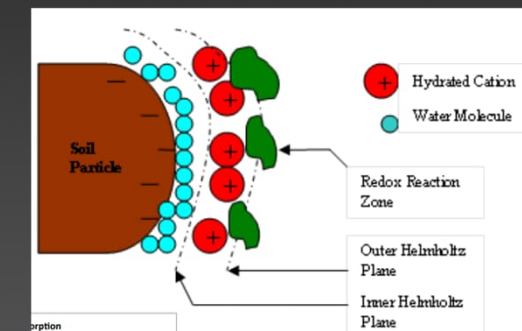
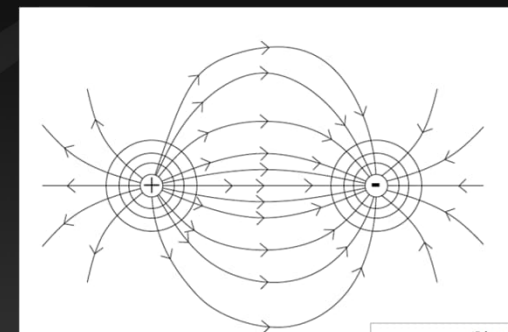
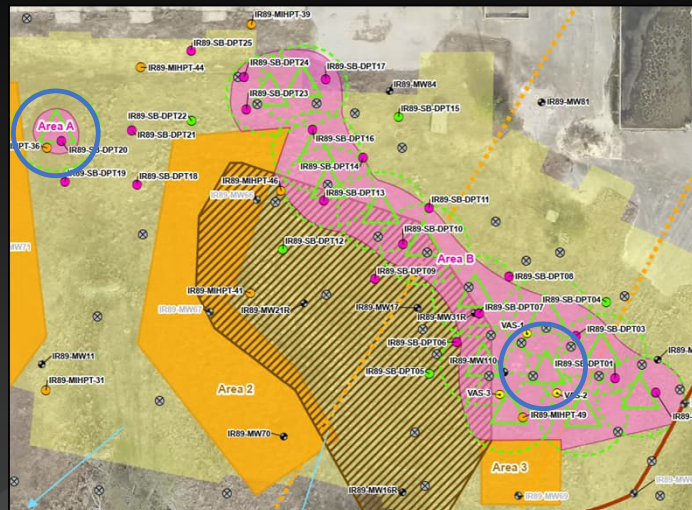
- Preliminary size estimate for pilot test plot: 25 ft x 25 ft
- Anode/cathode well heads (estimated 3 each)
- Initiate Staged Operation and Monitoring
 - 5-6 months operation and monitoring
 - 1-2 months downtime to allow for biodegradation
 - 5-6 months operation and monitoring, under reversed electric field
- Team partner with Geosyntec



FY25 Key Projects – Site 89

Bioelectrochemical Study

- E-Redox-I is a patented technology developed by Advanced Environmental Technologies, LLC (AET, Fort Collins, CO)
 - Generates a low-voltage gradient electric field in between electrodes
 - Uniformly inducing redox reactions within the impacted matrices
- Degradation is achieved through multiple reactions:
 - Enhanced reductive dechlorination (biological hydrogenous and abiotic beta-elimination)
 - Contaminant desorption
 - Increased microbial activity
- **General Approach:**
 - Install 3 electrode wells and 1 groundwater monitoring well in each area
 - Operate for 1 year
 - Collect two groundwater and 18 soil samples during 3 events (baseline event, after six months of operation, and after 12 months) for site-specific VOCs



Fiscal Year 2025 Goals

Installation Restoration Program

- Finalize Site 9 (OU2) VOC SI Report
- Finalize 2 PFAS RI work plans and initiate field activities
- Finalize Site 111 PFAS RI Report
- Finalize Site 88 Zone 1 EK-BIO Work Plan and initiate pilot study
- ✓ Finalize Site 88 Zone 2 Work Plan and initiate field activity
- ✓ Finalize Site 88 Zone 3 Pilot Study Technical Memorandum
- Finalize Site 89 E-Redox Treatability Study Work Plan and initiate field activity
- Finalize Site 96 Interim Remedial Action Completion Report
- Finalize 11 Long-term Monitoring Annual Reports
- Finalize Long-term Monitoring/VIMS Sampling and Analysis Plan
- Finalize Vapor Intrusion Five Year Review Sampling and Analysis Plan Addendum
- Finalize Site 82 Building 626 Tech Memo
- Finalize 2025 Five Year Review

Military Munitions Response Program

- Finalize UXO-28 After Action Report
- ✓ Finalize UXO-28 Feasibility Study
- Finalize UXO-28 Proposed Plan
- Finalize UXO-28 Record of Decision
- ✓ Finalize UXO-29 Feasibility Study
- Finalize UXO-29 Proposed Plan
- Finalize UXO-29 Record of Decision
- Finalize UXO-30 Record of Decision and prepare Remedial Design
- ✓ Finalize UXO-31 Remedial Investigation Work Plan and initiate field activities
- Finalize Basewide Radiological Preliminary Assessment, initiate Site Inspection

Camp Lejeune Awards

- Secretary of the Navy Award for Environmental Restoration – Installation – 9x (2024)
- Secretary of Defense Award for Environmental Restoration – Installation – 3x (2022)
- 2023 USEPA National Notable Achievement Award for Federal Facilities Excellence in Partnering Team of the Year



2024 SECRETARY OF DEFENSE ENVIRONMENTAL AWARDS

Environmental Restoration – Installation
Marine Corps Base Camp Lejeune, North Carolina

INTRODUCTION

Marine Corps Base (MCB) Camp Lejeune was commissioned in 1941 with a mission that still holds true to this day: to maintain combat-ready warfighters for expeditionary deployment. Camp Lejeune is a training base that promotes combat readiness of the operating forces and missions of other tenant commands by providing training venues, facilities, services, and support in order to be responsive to the needs of Marines, sailors, and their families.



Environmental, Geographical, and Regional Setting

Camp Lejeune covers more than 156,000 acres in the Atlantic coastal plain of southeastern North Carolina in Onslow County, adjacent to the City of Jacksonville. The Base consists of a diverse environmental setting including approximately 72,000 acres of upland forests, 49,000 acres of wetlands, 26,000 acres of water, and 7,500 acres of urban/developed land with elevations ranging from sea level to 70 feet above mean sea level. The Base boundary includes approximately 14 miles of beach along the Atlantic Ocean. Beach frontage consists of a barrier island system and is separated from the mainland by salt marshes, small bays, and the Atlantic Intracoastal Waterway. Several large, publicly owned tracts of land, including Croatan National Forest, Hoffman Forest, and Hammocks Beach State Park, are located within 15 miles of the Base. The remaining surrounding land uses are a mix of urban, suburban, small town, and agricultural, as Onslow County has grown and developed with Camp Lejeune. Estuaries along the coast support commercial fishing, recreation, and tourism, and residential resort areas along the coast are important to the regional economy.

Community Setting

Camp Lejeune and the surrounding community are home to a large concentration of Marines and Sailors, with an active duty, dependent, retiree, and civilian employee population of approximately 148,000 people. Camp Lejeune enjoys a close relationship with the Base community and neighboring civilian communities. Neighboring communities, cities, and towns include the City of Jacksonville, Verona, Holly Ridge, North Topsail Beach, Surf City, Piney Green, Sneads Ferry, and Swansboro.

BACKGROUND

Historical operations, storage, and disposal practices at Camp Lejeune resulted in environmental impacts to soil and groundwater. As a result, Camp Lejeune has been actively engaged in environmental investigations and remediation programs since 1981. In 1989, the United States Environmental Protection Agency (USEPA) placed Camp Lejeune on the National Priorities List (NPL). Camp Lejeune is a leading Department of Defense (DoD) installation, operating at the forefront of environmental restoration programs. By maintaining collaborative relationships with regulatory agencies and the supportive local community, the team has made tremendous progress in investigating and cleaning up over 500 sites to-date under several environmental programs, including Comprehensive Environmental Response,



Questions

